

SEQUENCE LISTING

<110> STYMNE, Sten
STAHL, Ulf
EK, Bo
SJODAHL, Staffan

<120> PLANT ENZYME AND USE THEREOF

<130> STYMNE=1

<140> 09/155,124

<141> 1999-03-02

<150> PCT/SE97/00554

<151> 1997-03-27

<150> 9601237.2

<151> 1996-03-29

<160> 14

<170> PatentIn Ver. 2.0

<210> 1

<211> 146

<212> PRT

<213> Canis sp.

<400> 1

Met	Lys	Phe	Leu	Val	Leu	Ala	Ala	Leu	Leu	Thr	Val	Ala	Ala	Ala	Glu
1				5					10					15	

Gly	Gly	Ile	Ser	Pro	Arg	Ala	Val	Trp	Gln	Phe	Arg	Asn	Met	Ile	Lys
		20						25					30		

Cys	Thr	Ile	Pro	Glu	Ser	Asp	Pro	Leu	Lys	Asp	Tyr	Asn	Asp	Tyr	Gly
	35						40					45			

Cys	Tyr	Cys	Gly	Leu	Gly	Gly	Ser	Gly	Thr	Pro	Val	Asp	Glu	Leu	Asp
	50				55						60				

Lys	Cys	Cys	Gln	Thr	His	Asp	His	Cys	Tyr	Ser	Glu	Ala	Lys	Lys	Leu
	65				70					75					80

Asp	Ser	Cys	Lys	Phe	Leu	Leu	Asp	Asn	Pro	Tyr	Thr	Lys	Ile	Tyr	Ser
				85					90					95	

Tyr	Ser	Cys	Ser	Gly	Ser	Glu	Ile	Thr	Cys	Ser	Ser	Lys	Asn	Lys	Asp
			100					105					110		

Cys	Gln	Ala	Phe	Ile	Cys	Asn	Cys	Asp	Arg	Ser	Ala	Ala	Ile	Cys	Phe
		115					120					125			

Ser	Lys	Ala	Pro	Tyr	Asn	Lys	Glu	His	Lys	Asn	Leu	Asp	Thr	Lys	Lys
	130					135					140				

Tyr	Cys
145	

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<210> 1

<211> 146

<212> PRT

<213> Canis sp.

<400> 1

Met Lys Phe Leu Val Leu Ala Ala Leu Leu Thr Val Ala Ala Glu
1 5 10 15

Gly Gly Ile Ser Pro Arg Ala Val Trp Gln Phe Arg Asn Met Ile Lys
20 25 30

Cys Thr Ile Pro Glu Ser Asp Pro Leu Lys Asp Tyr Asn Asp Tyr Gly
35 40 45

Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Glu Leu Asp
50 55 60

Lys Cys Cys Gln Thr His Asp His Cys Tyr Ser Glu Ala Lys Lys Leu
65 70 75 80

Asp Ser Cys Lys Phe Leu Leu Asp Asn Pro Tyr Thr Lys Ile Tyr Ser
85 90 95

Tyr Ser Cys Ser Gly Ser Glu Ile Thr Cys Ser Ser Lys Asn Lys Asp
100 105 110

Cys Gln Ala Phe Ile Cys Asn Cys Asp Arg Ser Ala Ala Ile Cys Phe
115 120 125

~~Ser Lys Ala Pro Tyr Asn Lys Glu His Lys Asn Leu Asp Thr Lys Lys~~
~~130 135 140~~

Tyr Cys
145

<210> 2
 <211> 138
 <212> PRT
 <213> Trimeresurus flavoviridis

<400> 2
 Met Arg Thr Leu Trp Ile Met Ala Val Leu Leu Val Gly Val Asp Gly
 1 5 10 15
 Gly Leu Trp Gln Phe Glu Asn Met Ile Ile Lys Val Val Lys Lys Ser
 20 25 30
 Gly Ile Leu Ser Tyr Ser Ala Tyr Gly Cys Tyr Cys Gly Trp Gly Gly
 35 40 45
 Arg Gly Lys Pro Lys Asp Ala Thr Asp Arg Cys Cys Phe Val His Asp
 50 55 60
 Cys Cys Tyr Gly Lys Val Thr Gly Cys Asn Pro Lys Leu Gly Lys Tyr
 65 70 75 80
 Thr Tyr Ser Trp Asn Asn Gly Asp Ile Val Cys Glu Gly Asp Gly Pro
 85 90 95
 Cys Lys Glu Val Cys Glu Cys Asp Arg Ala Ala Ala Ile Cys Phe Arg
 100 105 110
 Asp Asn Leu Asp Thr Tyr Asp Arg Asn Lys Tyr Trp Arg Tyr Pro Ala
 115 120 125
 Ser Asn Cys Gln Glu Asp Ser Glu Pro Cys
 130 135

<210> 3
 <211> 148
 <212> PRT
 <213> Homo sapiens

<400> 3
 Met Lys Leu Leu Val Leu Ala Val Leu Leu Thr Val Ala Ala Ala Asp
 1 5 10 15
 Ser Gly Ile Ser Pro Arg Ala Val Trp Gln Phe Arg Lys Met Ile Lys
 20 25 30
 Cys Val Ile Pro Gly Ser Asp Pro Phe Leu Glu Tyr Asn Asn Tyr Gly
 35 40 45
 Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Glu Leu Asp
 50 55 60
 Lys Cys Cys Gln Thr His Asp Asn Cys Tyr Asp Gln Ala Lys Lys Leu
 65 70 75 80
 Asp Ser Cys Lys Phe Leu Leu Asp Asn Pro Tyr Thr His Thr Tyr Ser
 85 90 95

Tyr Ser Cys Ser Gly Ser Ala Ile Thr Cys Ser Ser Lys Asn Lys Glu
100 105 110

Cys Glu Ala Phe Ile Cys Asn Cys Asp Arg Asn Ala Ala Ile Cys Phe
115 120 125

Ser Lys Ala Pro Tyr Asn Lys Ala His Lys Asn Leu Asp Thr Lys Lys
130 135 140

Tyr Cys Gln Ser
145

<210> 4

<211> 145

<212> PRT

<213> Notechis scutatus

<400> 4

Met Tyr Pro Ala His Leu Leu Val Leu Leu Thr Val Cys Val Ser Leu
1 5 10 15

Leu Glu Ala Ser Ser Ile Pro Ala Arg Pro Leu Asn Leu Tyr Gln Phe
20 25 30

Gly Asn Met Ile Gln Cys Ala Asn His Gly Arg Arg Pro Thr Leu Ala
35 40 45

Tyr Ala Asp Tyr Gly Cys Tyr Cys Gly Ala Gly Gly Ser Gly Thr Pro
50 55 60

Val Asp Glu Leu Asp Arg Cys Cys Lys Ala His Asp Asp Cys Tyr Gly
65 70 75 80

Glu Ala Gly Lys Lys Gly Cys Tyr Pro Thr Leu Thr Leu Tyr Ser Trp
85 90 95

Gln Cys Ile Glu Lys Thr Pro Thr Cys Asn Ser Lys Thr Gly Cys Glu
100 105 110

Arg Ser Val Cys Asp Cys Asp Ala Thr Ala Ala Lys Cys Phe Ala Lys
115 120 125

Ala Pro Tyr Asn Lys Lys Asn Tyr Asn Ile Asp Thr Glu Lys Arg Cys
130 135 140

Gln
145

<210> 5

<211> 145

<212> PRT

<213> Bungarus multicinctus

<400> 5

Met Asn Pro Ala His Leu Leu Ile Leu Ser Ala Val Cys Val Ser Leu
1 5 10 15

Leu Gly Ala Ala Asn Val Pro Pro Gln His Leu Asn Leu Tyr Gln Phe
 20 25 30
 Lys Asn Met Ile Val Cys Ala Gly Thr Arg Pro Trp Ile Gly Tyr Val
 35 40 45
 Asn Tyr Gly Cys Tyr Cys Gly Ala Gly Gly Ser Gly Thr Pro Val Asp
 50 55 60
 Glu Leu Asp Arg Cys Cys Tyr Val His Asp Asn Cys Tyr Gly Glu Ala
 65 70 75 80
 Glu Lys Ile Pro Gly Cys Asn Pro Lys Thr Lys Thr Tyr Ser Tyr Thr
 85 90 95
 Cys Thr Lys Pro Asn Leu Thr Cys Thr Asp Ala Ala Gly Thr Cys Ala
 100 105 110
 Arg Ile Val Cys Asp Cys Asp Arg Thr Ala Ala Ile Cys Phe Ala Ala
 115 120 125
 Ala Pro Tyr Asn Ile Asn Asn Phe Met Ile Ser Ser Ser Thr His Cys
 130 135 140

Gln
145

<210> 6
 <211> 138
 <212> PRT
 <213> Vipera ammodytes

<400> 6
 Met Arg Thr Leu Trp Ile Val Ala Val Cys Leu Ile Gly Val Glu Gly
 1 5 10 15
 Ser Leu Leu Glu Phe Gly Met Met Ile Leu Gly Glu Thr Gly Lys Asn
 20 25 30
 Pro Leu Thr Ser Tyr Ser Phe Tyr Gly Cys Tyr Cys Gly Val Gly Gly
 35 40 45
 Lys Gly Thr Pro Lys Asp Ala Thr Asp Arg Cys Cys Phe Val His Asp
 50 55 60
 Cys Cys Tyr Gly Asn Leu Pro Asp Cys Ser Pro Lys Thr Asp Arg Tyr
 65 70 75 80
 Lys Tyr His Arg Glu Asn Gly Ala Ile Val Cys Gly Lys Gly Thr Ser
 85 90 95
 Cys Glu Asn Arg Ile Cys Glu Cys Asp Arg Ala Ala Ala Ile Cys Phe
 100 105 110
 Arg Lys Asn Leu Lys Thr Tyr Asn Tyr Ile Tyr Arg Asn Tyr Pro Asp
 115 120 125
 Phe Leu Cys Lys Lys Glu Ser Glu Lys Cys
 130 135

<210> 7
 <211> 138
 <212> PRT
 <213> Bothrops jararacus

<400> 7
 Met Arg Thr Leu Trp Ile Met Ala Val Leu Leu Val Gly Val Glu Gly
 1 5 10 15
 Asp Leu Trp Gln Phe Gly Gln Met Ile Leu Lys Glu Thr Gly Lys Leu
 20 25 30
 Pro Phe Pro Tyr Tyr Thr Thr Tyr Gly Cys Tyr Cys Gly Trp Gly Gly
 35 40 45
 Gln Gly Gln Pro Lys Asp Ala Thr Asp Arg Cys Cys Phe Val His Asp
 50 55 60
 Cys Cys Tyr Gly Lys Leu Thr Asn Cys Lys Pro Lys Thr Asp Arg Tyr
 65 70 75 80
 Ser Tyr Ser Arg Glu Asn Gly Val Ile Ile Cys Gly Glu Gly Thr Pro
 85 90 95
 Cys Glu Lys Gln Ile Cys Glu Cys Asp Lys Ala Ala Ala Val Cys Phe
 100 105 110
 Arg Glu Asn Leu Arg Thr Tyr Lys Lys Arg Tyr Met Ala Tyr Pro Asp
 115 120 125
 Val Leu Cys Lys Lys Pro Ala Glu Lys Cys
 130 135

<210> 8
 <211> 145
 <212> PRT
 <213> Bos taurus

<400> 8
 Met Arg Leu Leu Val Leu Ala Ala Leu Leu Thr Val Gly Ala Gly Gln
 1 5 10 15
 Ala Gly Leu Asn Ser Arg Ala Leu Trp Gln Phe Asn Gly Met Ile Lys
 20 25 30
 Cys Lys Ile Pro Ser Ser Glu Pro Leu Leu Asp Phe Asn Asn Tyr Gly
 35 40 45
 Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Asp Leu Asp
 50 55 60
 Arg Cys Cys Gln Thr His Asp Asn Cys Tyr Lys Gln Ala Lys Lys Leu
 65 70 75 80
 Asp Ser Cys Lys Val Leu Val Asp Asn Pro Tyr Thr Asn Asn Tyr Ser
 85 90 95

Tyr Ser Cys Ser Asn Asn Glu Ile Thr Cys Ser Ser Glu Asn Asn Ala
 100 105 110
 Cys Glu Ala Phe Ile Cys Asn Cys Asp Arg Asn Ala Ala Ile Cys Phe
 115 120 125
 Ser Lys Val Pro Tyr Asn Lys Glu His Lys Asn Leu Asp Lys Lys Lys
 130 135 140
 Cys
 145

<210> 9
 <211> 145
 <212> PRT
 <213> *Laticauda laticaudata*

<400> 9
 Met Tyr Pro Ala His Leu Leu Leu Leu Leu Ala Val Cys Val Ser Leu
 1 5 10 15
 Leu Gly Ala Ser Ala Ile Pro Pro Leu Pro Leu Asn Leu Ala Gln Phe
 20 25 30
 Ala Leu Val Ile Lys Cys Ala Asp Lys Gly Lys Arg Pro Arg Trp His
 35 40 45
 Tyr Met Asp Tyr Gly Cys Tyr Cys Gly Pro Gly Gly Ser Gly Thr Pro
 50 55 60
 Val Asp Glu Leu Asp Arg Cys Cys Lys Thr His Asp Gln Cys Tyr Ala
 65 70 75 80
 Gln Ala Glu Lys Lys Gly Cys Tyr Pro Lys Leu Thr Met Tyr Ser Tyr
 85 90 95
 Tyr Cys Gly Gly Asp Gly Pro Tyr Cys Asn Ser Lys Thr Glu Cys Gln
 100 105 110
 Arg Phe Val Cys Asp Cys Asp Val Arg Ala Ala Asp Cys Phe Ala Arg
 115 120 125
 Tyr Pro Tyr Asn Asn Lys Asn Tyr Asn Ile Asn Thr Ser Lys Arg Cys
 130 135 140
 Lys
 145

<210> 10
 <211> 30
 <212> PRT
 <213> elm seeds

<220>
 <223> Xaa at positions 1, 23, 24 and 25 can be any amino acid.

<400> 10

Xaa Asn Val Gly Val Gln Ala Thr Gly Thr Ser Ile Ser Val Gly Lys
1 5 10 15

Gly Cys Lys Arg Lys Cys Xaa Xaa Xaa Phe Cys Tyr Gly Pro
20 25 30

<210> 11

<211> 83

<212> PRT

<213> rice green shoots

<220>

<223> Xaa at position 81 can be any amino acid.

<400> 11

Met Arg Phe Phe Leu Lys Leu Ala Pro Arg Cys Ser Val Leu Leu Leu
1 5 10 15

Leu Leu Leu Val Thr Ala Ser Arg Gly Leu Asn Ile Gly Asp Leu Leu
20 25 30

Gly Ser Thr Pro Ala Lys Asp Gln Gly Cys Ser Arg Thr Cys Glu Ser
35 40 45

Gln Phe Cys Thr Ile Ala Pro Leu Leu Arg Tyr Gly Lys Tyr Cys Gly
50 55 60

Ile Leu Tyr Ser Gly Cys Pro Gly Glu Arg Pro Cys Asp Ala Leu Asp
65 70 75 80

Xaa Cys Cys

<210> 12

<211> 88

<212> PRT

<213> rice green shoots

<220>

<223> Xaa at positions 79 and 82 can be any amino acid.

<400> 12

Met Arg Phe Phe Leu Lys Leu Ala Pro Arg Cys Ser Val Leu Leu Leu
1 5 10 15

Leu Leu Leu Val Thr Ala Ser Arg Gly Leu Asn Ile Gly Asp Leu Leu
20 25 30

Gly Ser Thr Pro Ala Lys Asp Gln Gly Cys Ser Arg Thr Cys Glu Ser
35 40 45

Gln Phe Cys Thr Ile Ala Pro Leu Leu Arg Tyr Gly Lys Tyr Cys Gly
50 55 60

Ile Leu Tyr Ser Gly Cys Pro Gly Glu Arg Pro Cys Asp Gly Xaa Asp
65 70 75 80

Gly Xaa Cys Met Val His Asp His
85

<210> 13
<211> 138
<212> PRT
<213> rice green shoots

<400> 13
Met Pro Pro Arg Ser Pro Leu Leu Ala Leu Val Phe Leu Ala Ala Gly
1 5 10 15
Val Leu Ser Ser Ala Thr Ser Pro Pro Pro Pro Cys Ser Arg Ser
20 25 30
Cys Ala Ala Leu Asn Cys Asp Ser Val Gly Ile Arg Tyr Gly Lys Tyr
35 40 45
Cys Gly Val Gly Trp Ser Gly Cys Asp Gly Glu Glu Pro Cys Asp Asp
50 55 60
Leu Asp Ala Cys Cys Arg Asp His Asp His Cys Val Asp Lys Lys Gly
65 70 75 80
Leu Met Ser Val Lys Cys His Glu Lys Phe Lys Asn Cys Met Arg Lys
85 90 95
Val Lys Lys Ala Gly Lys Ile Gly Phe Ser Arg Lys Cys Pro Tyr Glu
100 105 110
Met Ala Met Ala Thr Met Thr Ser Gly Met Asp Met Ala Ile Met Leu
115 120 125
Ser Gln Leu Gly Thr Gln Lys Leu Glu Leu
130 135

<210> 14
<211> 35
<212> PRT
<213> Ulmus glabra (seeds of elm)

<220>
<223> Xaa at positions 1 and 31 can be any amino acid;
Xaa at position 19 is Phe or Ser; at position 23
Glu or Pro; at position 24 Pro or Lys; at
position 25 Phe, Tyr or Leu; at position 34 Arg
or Leu; and at position 35 Tyr or Ser.

<400> 14
Xaa Asn Val Gly Val Gln Ala Thr Gly Thr Ser Ile Ser Val Gly Lys
1 5 10 15
Gly Cys Xaa Arg Lys Cys Xaa Xaa Xaa Phe Cys Tyr Gly Pro Xaa Phe
20 25 30
Leu Xaa Xaa
35